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SCIENCE

FRIDAY, AUGUST 27, 1915

THE TECHNICAL APPLICATION OF MICRO-ORGANISMS TO AGRICULTURE¹

CONTENTS

<i>The Technical Application of Microorganisms to Agriculture:</i> PROFESSOR CHARLES E. MARSHALL	257
<i>An Analysis of the Medical Group in Cattell's Thousand Leading Men of Science:</i> DR. RICHARD M. PEARCE	264
<i>The National Forests</i>	278
<i>Scientific Notes and News</i>	280
<i>University and Educational News</i>	281
<i>Discussion and Correspondence:—</i>	
<i>Elementary Mechanics:</i> PROFESSOR L. M. HOSKINS.	281
<i>Quotations:—</i>	
<i>British Scientific Men and the Government.</i>	282
<i>Scientific Books:—</i>	
<i>Ellwood on the Social Problem:</i> PROFESSOR A. A. TENNEY	283
<i>Special Articles:—</i>	
<i>New Methods in Soil Protozoology:</i> NICHOLAS KOPELOFF, H. CLAY LINT, DAVID A. COLEMAN	284
<i>Societies and Academies:—</i>	
<i>The Botanical Society of Washington:</i> DR. PERLEY SPAULDING	286

MSS. intended for publication and books, etc., intended for review should be sent to Professor J. McKeen Cattell, Garrison-on-Hudson, N. Y.

OUT of a period extending over several centuries, there were developed many scientific and unclassified forces which gradually but with positive progress focused in the person of Pasteur. They were often indefinite, possibly crude, and not infrequently speculative. In the mind of Pasteur they were digested, assimilated, reconstructed and confirmed, reissuing from him in an harmonious whole. When they emerged they possessed tangible form as directive principles founded upon actual demonstration and specific knowledge.

Fermentation, the great fundamental work of Pasteur, came from his hand with new life and singular pertinency. The vitalistic element advanced by him and founded so thoroughly upon experimental data fresh from his efforts became the pilot. While perhaps in error regarding details, the general truths have stood the tests of time. Pasteur's fermentation has put into the hands of every scientist, whether in the field of plants or animals, physics or chemistry, a truly basic working policy. If extended and modified, moreover, it may furnish the most satisfactory theory for explaining the relationship of many microorganisms to disease, not as the only agent, but one of several.

The comprehensive and basic ideas contained in fermentation permeate every province of practical life, and none to a

¹ "The Lower Organisms in Relation to Man's Welfare," Symposium, Soc. of Am. Bact., Sects. C and K, A. A. A. S., Philadelphia, January 1, 1915.